What is claimed is:

1. A method for assaying concentrations of Coenzyme A molecules in biological samples, the method being characterized by comprising a step of extraction from a biological sample using a strongly acidic solution, a step of solid phase extraction, a step of adding an internal standard substance, and a step of detection by LC-MS.

2. The method for assaying Coenzyme A molecules according to claim 1, characterized in that the step of extracting the Coenzyme A molecule from the biological sample is a step wherein a freeze-shattered biological sample is agitated in a perchloric acid solution and the supernatant is subjected to centrifugal separation.

3. The method for assaying Coenzyme A molecules according to claim 1 or 2, characterized in that the solid phase extraction step is a step wherein the supernatant obtained by extraction of the Coenzyme A with a strongly acidic solution is neutralized, and then applied to a reverse phase cartridge packed with silica gel containing an octadecylsilyl group or octylsilyl group, washed with an aqueous solvent, and eluted with an organic solvent.

4. The method for assaying Coenzyme A molecules according to claim 3, characterized in that the supernatant is applied after conditioning the reverse phase cartridge with acetonitrile and 1 M ammonium acetate solution.

5. The method for assaying Coenzyme A molecules according to claim 3, characterized in that the organic solvent is a mixture of acetonitrile and ammonium acetate.

6. The method for assaying Coenzyme A molecules according to claim 1, characterized in that the Coenzyme A molecule is a fatty acid Coenzyme A ester, and the internal standard substance is a structural analog of the Coenzyme A molecule.

7. The method for assaying Coenzyme A molecules according

to claim 6, characterized in that the fatty acid Coenzyme A ester is a Coenzyme A ester of a short chain fatty acid with 2-8 carbons in the main carbon chain, and the structural analog has a difference of no more than 3 carbons with the Coenzyme A molecule and has at least 3 of the hydrogens of the main chain substituted with deuterium, or has at least 3 of the carbons of the main carbon chain substituted with ^{13}C.

8. The method for assaying Coenzyme A molecules according to claim 7, characterized in that the Coenzyme A molecule is malonyl CoA and the structural analog is acetyl CoA-d_3, methylmalonyl CoA-d_3, methylmalonyl CoA-d_4, propionyl CoA-d_3, propionyl CoA-d_5 or malonyl CoA-$^{13}C_3$.